HYPER-ARC CONSISTENCY IN A CONTRAINT SATISFACTION NETWORK

ABSTRACT

A method for solving a constraint satisfaction problem includes receiving a set of variables having respective input domains and a set of relations among the variables, and building a network of one or more hyper-arcs representative of the set of relations, each hyper-arc corresponding to one of the relations and linking nodes in the network corresponding to the variables that are subject to the relation. For each of the hyper-arcs, the variables are assembled in a hierarchy based on the relation corresponding to the hyper-arc. The input domains of the variables in the hierarchy are reduced, so as to determine respective output domains of the variables that are consistent with the relations.